UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/446,024	12/16/1999	FREDERIC BESEME	105045	1689

25944 7590 05/21/2003

OLIFF & BERRIDGE, PLC
P.O. BOX 19928
ALEXANDRIA, VA 22320

EXAMINER	
LEFFERS JR, GERALD G	
ART UNIT	**PAPER NUMBER**
1636	

DATE MAILED: 05/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/446,024	BESEME ET AL.	
	Examiner	Art Unit	
	Gerald G Leffers Jr.	1636	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 February 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12,18-23,25-32,34-36 and 38-48* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12, 18-23, 25-32, 34-36, 38-48* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Receipt is acknowledged of a response to the Notice of Non-Responsive Amendment mailed 1/29/03 as Paper No. 20. The response, filed 2/28/03, correctly points out that the application is a CPA of a previous filing and is not required to be totally responsive with regard to the outstanding rejections due to its status as a new filing. An action in response to the amendment filed 10/30/02 as Paper No. 19 follows.

In Paper No. 19 several claims were amended (claims 1-10, 18, 25-32, 34-35) and several new claims added (claims 39-48). Claims 13-14, 24, 33 and 37 were cancelled. Claims 1-12, 18-23, 25-32, 34-36, 38-48 are pending in the instant application.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 11 and 28-30 are rejected under 35 U.S.C. 101 because the claimed invention is not supported by either a specific and substantial asserted utility or a well-established utility. **This rejection is maintained for reasons of record in Paper No. 14, mailed 1/31/02 and repeated below. Applicants' response in Paper No. 19 does not directly address this grounds of rejection.**

Each of these claims appear to be limited to nucleic acid sequences for which there appears to be no prior art describing a nucleic acid comprising the exact same sequence and for which a specific and substantial utility has been demonstrated. Therefore, for these sequences

there appears to be no well-established utility. Moreover, the prior art does not appear to provide support for any of the asserted utilities for the claimed nucleic acids.

The specification teaches that the claimed sequences were obtained from cDNAs isolated from placenta or from a deduced genomic RNA sequence based upon alignment of several overlapping cDNAs (termed by applicants as HERV-W). This proposed genomic RNA sequence (SEQ ID NO: 11) is described as having several of the characteristics of retroviral genomic RNAs. There is no description of a single genomic clone comprising all of the deduced RNA sequences. It is unclear whether there exists in the human genome a single complete copy of the deduced RNA genome. Several elements of the deduced RNA sequence do appear to be expressed in placental cells and not in several other cell types. The specification teaches that the genomic distribution of the HERV-W sequences throughout the genome is complex, with hundreds of partial sequences scattered across several different chromosomes.

Asserted utilities for the claimed nucleic acids are several, including for example, use of the nucleic acid sequences as markers or probes for several diseases or disorders such as autoimmune disease or unsuccessful pregnancy. All of the asserted utilities are dependent upon the recited sequences actually being correlated with a particular disease or condition. However, the specification provides no convincing evidence that such specific (i.e. correlating to a specific condition) or substantial (i.e. not requiring additional experimentation to identify or confirm) utilities exist for the claimed nucleic acids. For example, the specification bases several of its asserted utilities upon the observation that other human endogenous retroviral nucleic acid sequences have some unspecified degree of correlation to disease or disorders. There is no significant correlation, however, between the prior art endogenous retroviral sequences and the

instant nucleic acids with regard to specific diseases or disorders, and the specification provides no convincing rational as to why one of skill in the art would expect the claimed nucleic acid sequences to be correlated to the same conditions or diseases as is exhibited by other non-related HERV elements. The specification also asserts that the claimed nucleic acids can be used to diagnose risk of a pathological pregnancy or risk of unsuccessful pregnancy based upon the observation that a few of the sequences comprised within the proposed HERV-W sequence are expressed somewhat specifically in the placenta. However, there is no convincing rational presented in the specification as to why the recited sequences should be associated with a problem pregnancy. For example, there is no comparison of expression of the nucleic acids of the invention in abnormal pregnancies to expression of the same sequences in normal pregnancies.

Given that there is no well-established utility for nucleic acids comprising the recited nucleotide sequences, and that there is no convincing support provided by the specification or prior art for any of the asserted utilities such that the asserted utilities can be considered specific and substantial, one of skill in the art would reasonably conclude that the recited nucleic acid sequences lack specific and substantial utility.

Claims 11 and 28-30 are also rejected under 35 U.S.C. 112, first paragraph. Specifically, since the claimed invention is not supported by either a specific and substantial asserted utility or a well established utility for the reasons set forth above, one skilled in the art clearly would not know how to use the claimed invention.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-3, 8-10, 20-23, 25-29 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. **This is a new rejection.**

Each of the claims comprises the limitation of a nucleic acid or protein exhibits "for every sequence of [X] contiguous" residues a certain percentage homology. This limitation means that for every set of sequences of a recited length within the recited DNA or polypeptide a given level of homology or identify must be present. There is no literal or inherent support for this limitation in the instant application. Therefore, this limitation is impermissible NEW MATTER.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-12, 15-20, 21-36, 38 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. **This rejection is maintained.**

Claims 1-4 are vague and indefinite in that the metes and bounds of the phrase "nucleic material of the retroviral genomic type" are unclear. The phrase does not appear to be well defined by the specification. For example, how homologous to a reference retroviral nucleotide sequence does a given sequence have to be in order to qualify as a nucleic acid of the "retroviral type"? How much of a nucleic acid derived from a retroviral genome must be present in order for it to be of a "retroviral genomic type"? It would be remedial to amend the claim language to more clearly indicate what is intended by the recited limitation of "nucleic material of the retroviral genomic type". **This rejection is maintained.**

Claims 1 and 2 are also vague and indefinite in that it is unclear what is intended by the term "reference nucleotide sequence". This term does not appear to be well defined in the specification. It would be remedial to amend the claim language to clearly indicate what is intended by the recited term. **This rejection is maintained and extended to claim 2.**

Claim 20 is vague and indefinite in that the claim is drawn towards a non-elected embodiment (i.e. a therapeutic composition). It would be remedial to amend the claim language to delete this limitation. **This rejection is maintained.**

Response to Arguments/112 2nd Paragraph

Applicants' response in Paper No. 19 essentially argues the following: 1) the phrase "nucleic material of the retroviral genomic type" is adequately defined in the specification (e.g. page 4, lines 8-13), 2) the term "reference nucleotide sequence" is present in claim 1 merely to provide prior antecedent basis for the term in later claims, 3) therapeutic embodiments in claim 20 do not render the claim indefinite and should be searched along with the instant claims.

These arguments are not persuasive. The passage cited by applicants from the instant application does not clarify how much and how similar to a retroviral genome a nucleic acid has to be in order to satisfy the limitation of being "nucleic material of the retroviral genomic type". For example, how "related" to the organization of a retrovirus and/or to its functional coding sequence does a nucleic acid have to be in order to satisfy the claim limitation?

The fact that the term "reference nucleotide sequence" is present in an independent claim in order to provide antecedent basis for a subsequent dependent claim does not in any way answer the grounds of rejection stated above.

With regard to claim 20, the fact that the claim is directed to an embodiment that is not actively under consideration does make the claim indefinite. Arguments directed to rejoinder of the claims have already been considered and answered.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C.

122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1-10, 12, 18-36 and 38-48 are rejected under 35 U.S.C. 102(e) as being anticipated by Perron et al (U.S. Patent No. 6,001,987; see the entire document). **This rejection is maintained for reasons of record in Paper No. 14, mailed 1/31/02 and repeated below. Applicants' response in Paper No. 19 does not directly address this grounds of rejection. The rejection is hereby extended to new claims 39-48.**

The Perron et al patent teaches the identification of sequences derived from a human endogenous retroviral genome and co-infective agent (MSVR-1 and MSVR-2, respectively) and which are associated with multiple sclerosis (MS), a disease with an autoimmune component (e.g. Abstract; column 3, lines 5-30; column 4, lines 15-50). The specification of the '987 patent teaches that the nucleic acids of the invention can be used for detection of a pathogenic and/or infective agent associated with MS (e.g. column 5, lines 10-29). The specification of the '987 patent teaches examples wherein specific MSRV-1 or MSRV-2 sequences are detected in samples (e.g. plasma or blood) obtained from patients having MS (e.g. Example 6).

The attached Sequence Identity search demonstrates that the sequence described by SEQ ID NO: 11 of the instant specification has 78.4% similarity to SEQ ID NO: 57 of the '987 patent. SEQ ID NO: 11 also has 88% similarity to SEQ ID NO: 89 of the '987 patent and 86.4% similarity to SEQ ID NO: 61 of the '987 patent. Figure 1 of the instant specification teaches that SEQ ID NOS: 1-5, 7-10 are comprised within the proposed genomic RNA sequence described by SEQ ID NO: 11. The search report demonstrates several sequences which have very high

identity with SEQ ID NO: 11. For example, from nt 2317 to nt 2438 of SEQ ID NO: 89 of the '987 patent, approximately 100 contiguous monomers, there is ~95% identity to SEQ ID NO: 11 of the instant specification.

Claims 1-9, 11-12, 24-27 and 31-36, 39-48 are rejected under 35 U.S.C. 102(b) as being anticipated by Pauly or Waterston (Search Report #1, result # 3, Accession No. AC000064; available to the public since 13 November 1996). **This rejection is maintained for reasons of record in Paper No. 14, mailed 1/31/02 and repeated below. Applicants' response in Paper No. 19 does not directly address this grounds of rejection. The rejection is hereby extended to new claims 39-48.**

As shown in the attached search report, Pauly and Waterston submitted the sequence of a human BAC clone, RG083M05. This sequence was available to the public as of 13 November 1996. Applicants admit in their specification that this genomic clone was available in the art at the time of applicants' invention and that the putative genomic RNA sequence has ~96% identity over its length with the sequence of RG083M05 (e.g. Example 2). The entire nucleotide sequence of RG083M05 can be used as a probe capable of hybridizing to SEQ ID NO: 11. Nucleic acid sequences within the BAC clone can be considered as "markers" for detection.

Conclusion

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gerald G Leffers Jr. whose telephone number is (703) 308-6232. The examiner can normally be reached on 9:30am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Remy Yucel can be reached on (703) 305-1998. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-7939 for regular communications and (703) 305-7939 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.

Gerald G Leffers Jr.
Examiner
Art Unit 1636

Ggl
May 19, 2003